Patent
Attorney's Docket No. P2428USX-722

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)	
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Application No.: 09/754,147)	Examiner: M. Padmanabhan
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Filed: January 5, 2001)	Confirmation No. 3465
)	
For: TIME-BASED, NON-CONSTANT)	
TRANSLATION OF USER)	
INTERFACE OBJECTS BETWEEN)	
STATES)	

REQUEST FOR RECONSIDERATION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action mailed April 22, 2003, wherein pending claims 1-5, 7, 8, 10-17 and 19-29 are finally rejected, Applicant respectfully requests favorable reconsideration in view of the remarks presented herein below.

In paragraph 2, the Office Action rejects claims 1-5, 7, 8, 10, 20 and 21 under 35 U.S.C. §102(b) as being anticipated by the Chang et al. paper titled "Animation: From Cartoon to the User Interface" ("Chang"). Applicant respectfully traverses this rejection.

It is well known that in order to support a rejection under 35 U.S.C. §102, each and every claimed element must be disclosed by the cited reference. In the present case, claims 1-5, 7, 8, 10, 20 and 21 are not anticipated by Chang for at least the reason that Chang fails to disclose each and every claimed element.

Chang discloses a user interface that employs cartoon animation principles in rendering/displaying interface objects. For example, to give a feeling of weight to objects and physicality to their movement, Chang employs a technique referred to as slow in and slow out rather than drawing objects equally spaced in space and time. As a result of this process, objects appear to move out of a position slowly, then quickly during the bulk of the movement, and then slowly into the ending position. (See page 50 and FIG. 8 and 9 of

Chang). Chang is silent, however, as to how this slow in, slow out process appearance is achieved.

The present invention relates to graphical user interfaces, and more particularly to the movement of user-interface objects, such as icons and windows. The present invention provides aesthetically pleasing visual effect when repositioning, resizing, or generally manipulating a displayed object, such as a window. For example, according to exemplary embodiments, when a window moves from a first position to a second position, the rate of translation is controlled in a non-linear manner to provide the visually pleasing effect. In one embodiment, the object accelerates and then decelerates as it moves. The rate of acceleration and deceleration is time-based, so that the same type of effect is achieved on all computers, independent of their respective processor speeds.

Accordingly, independent claim 1 defines a method for moving an object in a graphical user interface. The method includes, *inter alia*, the steps of determining a path of movement for the object along at least one axis, and a period of time for the movement along said path; establishing a non-constant velocity function along said axis for said period of time; calculating an instantaneous position for the object along said path in accordance with said function and the relationship of a current time value to said period of time; and displaying said object at said calculated position.

In rejecting claim 1, the Office Action asserts that Chang discloses the steps of establishing a non-constant velocity function along at least one axis for a period of time; and calculating an instantaneous position for the object along said path in accordance with said function and the relationship of a current time value to said period of time. To support this position, the Office Action points to FIGs. 8 and 9 and the concept of slow in and slow out discussed on page 51 of Chang. This assertion is unfounded for the following reason.

Although Chang discloses displaying an object at various positions between a starting position and an ending position wherein the distances between the positions are closer at the beginning and end than during the middle of the transition (illustrated in FIGs. 8 and 9), Chang fails to disclose how this slow in, slow out process is achieved. The passage cited by the Office Action (i.e., page 51 of Chang) only discloses that the

movement of an object is not composed of drawings that are equally spaced in space and time. Since Chang fails to explicitly disclose the steps of establishing a non-constant velocity function along an axis for a period of time, and calculating an instantaneous position for the object along the path in accordance with the function and the relationship of a current time value to the period of time as claimed, it appears that the Office Action is asserting that these functions/steps are inherent to the disclosure of Chang inasmuch as Chang allegedly achieves a similar result (i.e., the appearance of a change in the speed of an object's movement).

Regarding the inherency of claimed limitations, section 2112 of the MPEP states: "[t]he fact that a certain result or characteristic _may_ occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic."(emphasis in original) Furthermore, in _Ex parte Levy_, the Board of Patent Appeals and Interferences states:

> In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic _necessarily_ flows from the teachings of the applied prior art. Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original)

However, in the present case, the Examiner fails to provide any basis in fact or technical reasoning to support the determination that the slow in, slow out process disclosed in Chang is achieved by establishing a non-constant velocity function and calculating an instantaneous position for the object along the path in accordance with the function as claimed. The Examiner merely points to various figures in Chang, which show various animation results, as disclosing specific methods for achieving the shown results. For example, the Office Action states that Figure 1 of Chang illustrates that the position of an object is "based on" time and velocity. However, this is not what Chang is disclosing. Rather, Figure 1 of Chang illustrates the _effect_ that fast speeds have on the user's perception of continuous motion in a frame-based system. There is no suggestion that a current time value is one of the parameters that is employed to determine the instantaneous

position of an object. Furthermore, the illustration of position over time is not equivalent to disclosing that the positions are based on time and velocity calculations.

The claimed steps are not inherent to the disclosure of Chang for at least the reason that the slow in, slow out process of Chang may be achieved by various techniques or calculations based on distance alone. For example, the number of and distance between each object display may be based on the total distance to be traveled. Therefore, the velocity function and time calculation of the present invention do not *necessarily* flow from the teachings of Chang. As pointed out in the specification, one of the advantages achieved by the present invention is the fact that the movement of an object is independent of the speed of the processor[1]. Nothing in Chang discloses how to achieve such consistency across disparate computing platforms. Accordingly, Chang fails to anticipate claim 1.

Independent claim 5 defines a method of moving an object in a graphical user interface that includes, *inter alia*, displaying the object at sequential positions along a path from a starting location to a final location at increments of time, such that the distance between successive positions varies in accordance with a non-linear function so that the object appears to be moving at a changing velocity. Independent claim 5 is patentably distinguishable over Chang for at least the reason that Chang fails to disclose a method that includes the step of displaying the object at sequential positions along a path from a starting location to a final location at increments of time, such that the distance between successive position varies in accordance with a non-linear function as claimed.

Again, the Office Action appears to assert that the claimed step is inherent to the slow in, slow out process disclosed in Chang. This assertion is unfounded for at least the reason that the Examiner fails to provide any basis in fact or technical reasoning to support the determination that the distance between the successive positions illustrated in FIGs 8 and 9 varies in accordance with a *non-linear function* as claimed. Accordingly, independent claim 5 is not anticipated by Chang.

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[1]The Office Action states that this feature of the invention is not claimed. Applicant respectfully submits, however, that it is implicit in the claim because it is a result of the process recited in the claims. Namely, the time-based determination of an object's position is what enables the effect to be independent of processor speed.

Independent claim 8 defines a user interface which includes means for carrying out the method of claim 5. Therefore, claim 8 is patentably distinguishable over Chang for at least those reasons presented above with respect to claim 5.

Independent claim 20 defines a user interface for a computer. The user interface includes, *inter alia*, a display space within which an object is displayed at a first location; and means, responsive to a user action, for selecting a second location to which said object is to be moved and a period of time during which the movement is to occur, and for moving said object from the first location to said second location at a non-linear rate of movement during said period of time. The user interface of claim 20 is not anticipated by Chang for at least the reason that Chang fails to disclose a user interface that includes means for selecting a period of time during which movement of the object is to occur and moving the object at a non-linear rate of movement during said period of time (See discussion above).

Dependent claims 2, 3, 7, 10 and 21 recite, in addition to the limitations of their respective base claims, that the function is non-linear and/or a sinusoidal function. In addition, dependent claim 4 recites that calculating the instantaneous position for the object includes, among other steps, calculating a ratio of the elapsed time to total time period; applying the ratio to the function to determine a translation factor; and using the translation factor to determine the instantaneous position. Therefore, claims 2-4, 7, 10 and 21 are patentably distinguishable over Chang, not only for those reasons presented above with respect to their respective base claims, but also because Chang fails to disclose that the varying positions illustrated in FIGs. 8 and 9 are based on a sinusoidal function or that the positions are calculated using a translation factor as claimed.

Nevertheless, the Office Action asserts that each of the limitations recited in the dependent claims are inherent because Chang allegedly teaches the positions are based on time, distance and velocity. For example, with regard to claim 3, the Office Action alleges that "Chang *implicitly* teaches the function being a sinusoidal function, since Chang teaches that the velocity of the object increases gradually to a maximum value in the slow-

in phase, and then decreases gradually, similar to a sine function." (emphasis added) This assertion is unfounded for the following reason.

Even if one where to interpret the varying distances of Chang as varying velocity, nowhere in Chang is there any disclosure that the distance/velocity varies in accordance with a sine function. The alleged disclosure in Change of increasing the velocity to a maximum and then decreasing of the velocity could be achieved in accordance with any number of functions. Accordingly, varying the velocity in accordance with a sine function does not necessarily flow from the disclosure of increasing the velocity to a maximum and then decreasing it as allegedly disclosed in Chang.

For at least those reasons presented above, claims 1-5, 7, 8, 10, 20 and 21 are not anticipated by Chang. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1-5, 7, 8, 10, 20 and 21 under 35 U.S.C. §102.

In paragraph 4, the Office Action rejects claims 14-17, 19, 25 and 26 under 35 U.S.C. §103(a) as being unpatentable over Chang. Applicant respectfully traverses this rejection.

It is well known that in order to support a rejection under 35 U.S.C. §103, three basic criteria must be met. One of these basic criteria that the combination must teach each and every claimed limitation. Claims 14-17, 19, 25 and 26 define program products and systems for the methods of claims 1-3, 5 and 7. Accordingly, claims 14-17, 19, 25 and 26 are patentably distinguishable over Chang for at least the reason that Chang fails to disclose or suggest each and every claimed limitation, as discussed above with respect to claims 1-3, 5 and 7. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 14-17, 19, 25 and 26 under 35 U.S.C. §103(a).

In paragraph 5, the Office Action rejects claims 11, 22 and 27 under 35 U.S.C. §103(a) as being unpatentable over Chang in view of the IBM TDB article titled "Window Closing Animations" ("IBM article"). Applicant respectfully traverses this rejection.

The IBM article discloses that various animated effects, such as shattering like a pane of glass, or melting as if exposed to intense heat, can be employed in a user interface to provide feedback to a user after initiating an operation to close a window. However, the

IBM article fails to overcome the deficiencies of Chang discussed above with regard to independent claims 8, 20 and 25, from which claims 11, 22 and 27 depend respectively. More specifically, the IBM article fails to disclose or suggest a user interface that includes means for displaying the object at different sequential positions during respective increments of time, such that the distance between successive positions varies in accordance with a non-linear function as recited in claim 8, or means for selecting a period of time for moving the object and for moving the object at a non-linear rate of movement during the period of time as recited in claims 20 and 25.

In rejecting claims 11, 22 and 27, the Office Action asserts that since the IBM article teaches animations for minimizing a window, it would have been obvious to one skilled in the art "to incorporate the animation for minimizing the window in the invention of Chang, in order to provide effective feedback on user action." However, the Office Action fails to provide any explanation as to how the suggested modification (i.e., animating the window minimizing operations as suggested by the IBM article) would overcome the deficiencies in Chang.

Since both Chang and the IBM article fail to disclose or suggest a user interface that includes means for displaying the object at different sequential positions during respective increments of time, such that the distance between successive positions varies in accordance with a non-linear function as recited in claim 8, or means for selecting a period of time for moving the object and for moving the object at a non-linear rate of movement during the period of time as recited in claims 20 and 25, the combination of these two documents cannot possibly disclose or suggest said features. Therefore, even if one skilled in the art were motivated to combine Chang and the IBM article as suggested by the Office Action, the combination would still fail to render claims 11, 22 and 27 unpatentable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 11, 22 and 27 under 35 U.S.C. §103(a).

In paragraph 6, the Office Action rejects claims 12, 13, 23, 24, 28 and 29 under 35 U.S.C. §103(a) as being unpatentable over Chang in view of U.S. Patent No. 5,796,102 to Ellison-Taylor ("Ellison-Taylor"). Applicant respectfully traverses this rejection.

Ellison-Taylor discloses a method of automatically aligning windows on a computer screen. However, Ellison-Taylor fails to overcome the deficiencies of Chang discussed above with respect to claims 8, 20 and 25, from which claims 12, 13, 23, 24, 28 and 29 variously depend.

In rejecting claims 12, 13, 23, 24, 28 and 29, the Office Action asserts that because Ellison-Taylor discloses a tiling program that aligns windows based on the relative position and size of the window when a request is made, Ellison-Taylor implicitly discloses the moving of objects in a series toward the space occupied by the removed object when an object is removed, and away from the inserted object when an object is inserted. Therefore, according to the Office Action it would have been obvious to one skilled in the art "to incorporate the tiling of Ellison-Taylor in the invention of Chang, so that the object may be displayed in their final positions without overlap, so that all the objects in the display area are visible to the user concurrently." However, the Office Action fails to provide any basis in fact or technical reasoning to support the determination that the tiling program of Ellison-Taylor moves objects in a series toward the space occupied by the removed object when an object is removed, and away from the inserted object when an object is inserted.

The tiling program disclosed by Ellison-Taylor repositions and arranges the currently displayed windows of a user-interface. Nowhere in Ellison-Taylor is there any discussion of the tiling program being initiated upon the removal or addition of a window. Accordingly, moving objects in a series toward the space occupied by the *removed object* when an object is removed, and away from the *inserted object* when an object is inserted does not necessarily flow out of the disclosure of Ellison-Taylor.

Furthermore, since both Chang and Ellison-Taylor fail to disclose or suggest a user interface that includes means for displaying the object at different sequential positions during respective increments of time, such that the distance between successive positions varies in accordance with a non-linear function as recited in claim 8, or means for selecting a period of time for moving the object and for moving the object at a non-linear rate of movement during the period of time as recited in claims 20 and 25, the combination of

these two documents cannot possibly disclose or suggest said features. Therefore, even if one skilled in the art were motivated to combine Chang and Ellison-Taylor as suggested by the Office Action, the combination would still fail to render claims 8, 20 and 25, from which claims 12, 13, 23, 24, 28 and 29 depend, unpatentable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 12, 13, 23, 24, 28 and 29 under 35 U.S.C. §103(a).

This application is in condition for allowance. Notice of same is earnestly solicited. Should the Examiner have any questions, the Examiner is invited to call the undersigned at the telephone number provided below.

Respectfully submitted,

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Date: __July 22, 2003_____